

UNIT 1 DAY 3

Section 1.2 & 1.3

Order and Absolute Value

PROPERTIES OF ORDER

For all real numbers a , b , and c :

TRICHOMY PROPERTY

either $a < b$, or $a > b$, or $a = b$

TRANSITIVE PROPERTY

If $a < b$ and $b < c$, then $a < c$.

ADDITION PROPERTY

If $a < b$, then $a + c < b + c$.

MULTIPLICATION PROPERTY

If $a < b$, and if $c > 0$, then $ac < bc$.

If $a < b$, and if $c < 0$, then $ac > bc$.

ABSOLUTE VALUE

For all real numbers a , $|a| = \begin{cases} a & \text{if } a \geq 0 \\ -a & \text{if } a < 0. \end{cases}$

$$|-6| = 6$$

PROPERTIES OF ABSOLUTE VALUE

$$|a| \geq 0$$

$$|-a| = |a|$$

$$|-6| = |6|$$
$$6 = 6$$

$$|a| \cdot |b| = |ab|$$

$$\left| \frac{a}{b} \right| = \frac{|a|}{|b|} \quad (b \neq 0)$$

$$|a + b| \leq |a| + |b| \quad (\text{called the triangle inequality})$$

~~(called the triangle inequality)~~

Write each expression without absolute value bars.

1) $|\overset{+}{-\sqrt{3}+2}|$
 $-\sqrt{3}+2$

2) $|\overset{-}{-\sqrt{3}+1}|$
 $-(-\sqrt{3}+1)$
 $\sqrt{3}-1$

3) $|\overset{-}{-\sqrt{3}-2}|$
 $-(-\sqrt{3}-2)$
 $\sqrt{3}+2$

4) $|\overset{-}{2-\pi}| =$
 $-(2-\pi)$
 $-2+\pi$
 $\pi-2$

5) $|\overset{-}{x-4}|$ if $x < 4$
 $-(x-4)$
 $4-x$

6) $|\overset{-}{\pi-4}|$
 $-(\pi-4)$
 $4-\pi$

8) $|\overset{+}{p^2+10}| =$
 p^2+10

9) $|\overset{-}{-3-\pi}| + 7 =$
 $3+\pi+7$
 $10+\pi$

10) $|\sqrt{12}+2| =$
 $2\sqrt{3}+2$

Use the concepts of this section to determine what signs on the values of x and y would make the statement true.

1) $xy < 0$

$$\underline{x > 0 \text{ AND } y < 0}$$

OR

$$\underline{x < 0 \text{ AND } y > 0}$$

2) $\frac{x}{y^2} < 0$

$$x < 0 \text{ and } y \neq 0$$

HOMEWORK

UNIT 1 DAY 3

p. 23-4: 29-48, 60-64